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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/595,862

05/17/2006

Christoph G. Leussler

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07/21/2008

PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
595 MINER ROAD  
CLEVELAND, OH 44143

EXAMINER

FETZNER, TIFFANY A

ART UNIT

PAPER NUMBER

2831

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/595,862	<b>Applicant(s)</b> LEUSSLER ET AL.	
	<b>Examiner</b> Tiffany A. Fetzner	<b>Art Unit</b> 2831	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 May 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/17/2006</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Information Disclosure Statement*

2. The information disclosure statement(s) (IDS)'s submitted on **5/17/2006** is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the information disclosure statement. The initialed and dated information disclosure statement (IDS) submitted on **5/17/2006** is attached to this Office action.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. **Claims 1-24 are** rejected under **35 U.S.C. 102(e)** as being anticipated by **Leussler** US patent 7,345,481 B2 issued March 18<sup>th</sup> 2008, with an effective US priority date of November 18th 2003. The examiner notes that the applied prior art has a different inventive entity than the instant application and is therefore applicable under 35 U.S.C. 102(e) due to its effective US priority date which is nearly a year before the earliest priority date of the instant application.

5. With respect to **Claim 1**, **Leussler** teaches and shows "A radio frequency coil system for magnetic resonance imaging" [See figures 1-13 and the abstract.], "the coil system comprising: a plurality of parallel spaced apart rungs which each includes rung capacitors;" [See the "rung capacitors  $C_R$  as shown in figures 3, 4, 7A, 7B, 7C, 7D, 11, 12, and 13] "an end cap disposed at a closed end of the coil system; and an RF shield which is connected to the end cap and surrounds the rungs extending in a direction substantially parallel to rungs". [See figures 11, 12 col. 6 line 55 through col. 7 line 29.]

6. With respect to **Claim 2**, **Leussler** teaches and shows "the RF shield is partially or wholly constructed of electrically conductive mesh or other conductive material with properties of at least partial optical transparency in a wavelength range of human vision. [See col. 6 lines 23-25, col. 7 lines 50-60; col. 1 lines 37-44; col. 2 lines 35-42.] The same reasons for rejection, which apply to **claim 1** also apply to **claim 2** and need not be reiterated.

7. With respect to **Claim 3**, **Leussler** shows "an end ring disposed at a closed end of the coil system and being coupled to the rungs, the end ring having capacitors between neighboring rungs. [See figure 13] The same reasons for rejection, which apply to **claim 1** also apply to **claim 3** and need not be reiterated.

8. With respect to **Claim 4**, **Leussler** shows "the rungs are directly connected to the RF shield at an open end. [See Figure 12.] The same reasons for rejection, which apply to **claims 1, 3** also apply to **claim 4** and need not be reiterated.

9. With respect to **Claim 5**, **Leussler** shows "an end ring disposed at an open end of the coil system and being coupled to the rungs, the end ring having capacitors between neighboring rungs. [See figure 11.] The same reasons for rejection, which apply to **claim 1** also apply to **claim 5** and need not be reiterated.

10. With respect to **Claim 6**, **Leussler** teaches and shows "wherein each pair of neighboring rungs is further coupled through closed end capacitors to define individual independent current loops or meshes. [See figures 3 through 13, col. 5 lines 1-31, col. 6 lines 23-25, col. 7 lines 1-60.] The same reasons for rejection, which apply to **claims 1, 5** also apply to **claim 6** and need not be reiterated.

11. With respect to **Claim 7**, **Leussler** teaches “the capacitors are selected to decouple the current loops or meshes to define a transmit/receive coil array forming a plurality of individual transmit/receive channels, such that each loop has selected phase and amplitude characteristics. [See as one example col. 4 line 1 through col. 5 line 7.] The same reasons for rejection, which apply to **claims 1, 5, 6** also apply to **claim 7** and need not be reiterated.

12. With respect to **Claim 8**, **Leussler** shows “at least one of the end ring and the rungs are capacitively coupled to the RF screen adjacent the open end via capacitors to define a current path through the RF screen. [See Figure 11.] The same reasons for rejection, which apply to **claims 1, 5** also apply to **claim 8** and need not be reiterated.

13. With respect to **Claim 9**, **Leussler** teaches “the coil system is a transmit/receive coil and a volume coil. [See col. 5 lines 1-18.] The same reasons for rejection, which apply to **claims 1, 5, 8** also apply to **claim 9** and need not be reiterated.

14. With respect to **Claim 10**, **Leussler** shows “further including: inductors connected between at least one of the end ring and the rungs to define a third resonance mode. [See figure 3 component 62.] The same reasons for rejection, which apply to **claims 1, 5, 8, 9** also apply to **claim 10** and need not be reiterated.

15. With respect to **Claim 11**, **Leussler** teaches “wherein the rung and end ring capacitors are selected to tune the coil system to a resonance frequency in one of: a low-pass mode, a high-pass mode, and a bandpass mode. [See figure 7a and col. 4 lines 46-57.] The same reasons for rejection, which apply to **claims 1, 5** also apply to **claim 11** and need not be reiterated.

16. With respect to **Claim 12**, **Leussler** shows “the rungs are directly connected to the end cap. [See figures 7a, 13.] The same reasons for rejection, which apply to **claim 1** also apply to **claim 12** and need not be reiterated.

17. With respect to **Claim 13**, **Leussler** shows “the rungs are capacitively coupled to the RF screen. [See figure 12.] The same reasons for rejection, which apply to **claim 1** also apply to **claim 13** and need not be reiterated.

18. With respect to **Claim 14**, **Leussler** shows and teaches “pairs of the rungs are coupled by open end capacitors to define individual meshes and further including:

couplings coupled to adjacent meshes, the couplings including one of: capacitive decoupling, inductive decoupling, impedance transformers, and overlapping portions of the individual meshes.” [See figures 1-13; col. 4 line 26 through col. 7 line 60.] The same reasons for rejection, which apply to **claim 1** also apply to **claim 14** and need not be reiterated.

19. With respect to **Claim 15**, **Leussler** teaches “the coil system is tuned by the rung capacitors, the open end capacitors, and the couplings to one of a volume mode and a SENSE mode. [See col. 5 lines 19-45, col 2 lines 55-58.] The same reasons for rejection, which apply to **claims 1, 14** also apply to **claim 15** and need not be reiterated.

20. With respect to **Claim 16**, **Leussler** teaches wherein the couplings include switching components for selectively switching between the volume mode and the SENSE mode. [See figure 4, and the swapability (i.e. switch ability) of using different coil sections or combinations as desired as set forth in col. 5 line 1 through col. 6 line 40.] The same reasons for rejection, which apply to **claims 1, 14, 15** also apply to **claim 16** and need not be reiterated.

21. With respect to **Claim 17**, **Leussler** teaches and shows “each rung is directly connected to the end cap and each mesh includes the end ring capacitor disposed at an open end of the coil system. [See figures 7a, 13, col. 6 lines 23-40.] The same reasons for rejection, which apply to **claims 1, 14, 15, 16** also apply to **claim 17** and need not be reiterated.

22. With respect to **Claim 18**, **Leussler** teaches each pair of the rungs of each mesh is further coupled by a closed end capacitor to define individual independent current loops. See figure 3 through 13, col. 5 lines 1-31, col. 6 lines 23-40, col. 7 lines 1-60.] The same reasons for rejection, which apply to **claims 1, 14, 15, 16, 17** also apply to **claim 18** and need not be reiterated.

23. With respect to **Claim 19**, **Leussler** teaches and shows coupling an end ring to an open end of the coil system, the end ring having open end capacitors between neighboring rungs to define a bandpass mode. [See figure 7a, 7D col. 5 lines 46-57.] The same reasons for rejection, which apply to **claim 1** also apply to **claim 19** and need not be reiterated.

24. With respect to **Claim 20**, **Leussler** teaches and shows: coupling each pair of neighboring rungs through closed end capacitors to define individual independent current loops; and proportioning the strip and open end capacitors to decouple the current loops to define a transmit/receive coil array. [See col. 5 line 1 through col. 7 line 30 with figures 1 through 13.] The same reasons for rejection, which apply to **claims 1, 19** also apply to **claim 20** and need not be reiterated.

25. With respect to **Claim 21**, **Leussler** teaches and shows: “capacitively coupling at least one of the end ring and the rungs to the RF screen adjacent the open end via capacitors to define a current path through the RF screen; and tuning the capacitors to a high resonance frequency to define a dual resonance mode, wherein the coil system is a transmit/receive coil and a volume coil. [See col. 5 line 1 through col. 7 line 30 with figures 1 through 13.] The same reasons for rejection, which apply to **claims 1, 19** also apply to **claim 21** and need not be reiterated.

26. With respect to **Claim 22**, **Leussler** teaches and shows: “coupling pairs of the rungs by open end capacitors to define individual meshes; coupling adjacent meshes by one of: capacitive couplings, inductive couplings, impedance transformers, and overlapping portions of the individual meshes. [See col. 3 line 1 through col. 7 line 30, with figures 1 through 13.] The same reasons for rejection, which apply to **claims 1, 19** also apply to **claim 22** and need not be reiterated.

27. With respect to **Claim 23**, **Leussler** teaches “tuning the coil system the rung capacitors, the open end capacitors, and the couplings to one of a volume mode and a SENSE mode. [See col. 5 lines 19-45, col 2 lines 55-58.] The same reasons for rejection, which apply to **claims 1, 19** also apply to **claim 23** and need not be reiterated.

28. With respect to **Claim 24**, **Leussler** teaches and shows: “A magnetic resonance imaging scanner” [See figure 2, the abstract.] “including: a magnet producing a main magnetic field;” [See col. 3 lines 51-58] “a plurality of magnetic field gradient coils arranged to produce magnetic field gradients to the main magnetic field;” [See col. 3 lines 56-58] “and the radio frequency coil system set forth in claim 1, the rungs extending in a direction substantially parallel to the main magnetic field. [See figures 1

through 13 and the text of col. 3 line 1 through col. 7 line 30.] The same reasons for rejection, which apply to **claim 1** also apply to **claim 24** and need not be reiterated.

#### ***Prior Art of Record***

29. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**A) \*Monski, Jr. et al.** US patent **7,084,629 B2** issued Aug. 1<sup>st</sup> 2006, filed November 27<sup>th</sup> 2003, with an effective US priority date of Nov. 27<sup>th</sup> 2002. The examiner notes that this reference also appears to show and teach all applicant's limitations, with the only difference being that the end cap is shown in the figures but not disclosed as a separate element. **Monski, Jr. et al.**, treats the end cap as an intrinsic component, which is shown but not separately taught and identified. Applicant should review this reference, before responding to this office action, as it also appears to satisfy each of the claimed limitations as currently recited, even though the term "end cap" is not utilized by the reference.

**B) \*Monski, Jr. et al.** US patent application publication 2005/0099179 A1 published May 12<sup>th</sup> 2005, which corresponds to US patent **7,084,629 B2** issued Aug. 1<sup>st</sup> 2006, filed November 27<sup>th</sup> 2003, with an effective US priority date of Nov. 27<sup>th</sup> 2002.

#### **Conclusion**

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is: (571) 272-2241. The examiner can normally be reached on Monday, Wednesday, and Friday-Thursday from 7:00am to 2:10 pm., and on Tuesday and Thursday from 7:00am to 5:30pm.

31. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Diego Gutierrez**, can be reached at (571) 272-2245. The **only official fax phone number** for the organization where this application or proceeding is assigned is **(571) 273-8300**.

32. Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system Status information for published applications may be obtained from either Private PMR or Public PMR. Status



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information for unpublished applications is available through Private PMR only. For more information about the PMR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PMR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/TAF/  
July 24, 2008

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